

# **The Role of Distance Learning in Chemical Education**

**J. J. Lagowski**

**Department of Chemistry & Biochemistry**

**The University of Texas at Austin**

**Austin, TX 78712, USA**

## **Abstract**

The role of chemistry as the central science [because it addresses the principles associated with the molecularity of the world] presages an increasing interest in the subject at the entry-level. Indeed, in some institutions the conventional, classically derived, teaching environment—lectures, laboratories, and, perhaps, discussions—is proving inadequate to the task at hand, i.e., the instruction of increasing numbers of students with a widening variety of interests in the subject. The present educational environment is generally passive and exercise-oriented instead of active and problem-solving-oriented. Over the past several years we have been addressing a number of educational issues in a distance learning environment.

Over the past ~ 25 years, interactive digital technology has been shown to assist certain conventional learning and teaching environments. We present here a description of an *integration* of all previously described successful computer-based techniques as well as some newer techniques into a distance-learning environment. We describe the nuances of the use of on-demand delivery of quizzes, interactive homework, simulations in the context of lecture-oriented content, as well as audio digital lectures at a concept-bite level; additionally, we describe the use of a variety of electronic interactions intended to encourage collaborative learning.